

# The Twig-Brook Lesion In Barefoot Waders; A Common But Neglected Injury In The Foot

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## Citation

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## Abstract

Penetrating injuries of the foot are very common. Although apparently straightforward, delayed diagnosis, inappropriate approach and treatment can lead to complications and unsatisfactory results. We present our diagnostic and therapeutic approach using an outcomes approach and clinical results in a commonly seen lesion in our state which occurs due to the penetration of wooden twigs or splinters while wading barefoot through small streams or brooks which we have named the twig-brook lesion.

## INTRODUCTION

Penetrating foot injuries of all types are very common. There are some types of such injuries that are typical of a certain region due to certain local factors like barefoot walking, farming, presence of certain animals or parasites and hygiene etc. A classical penetrating injury seen in this part of Southeast Asia occurs when people wade barefoot through shallow streams or brooks and cannot discern if any sharp object is present beneath their feet till they feel a twinge of pain. Usually, the person comes out of the water and examines the foot to find a small wound on the plantar aspect of the foot with some blood oozing out of it. The wound is generally dismissed as minor and ascribed to some sharp stone present in the stream and not attended to. However, the wound is persistent and does not heal even after the patient seeks medical attention, usually from the local medical shop. The patient usually seeks specialised attention only after 2-3 months have passed and there is a sinus formation with occasional pus discharge. Radiography is unhelpful and exploration of the wound done under tourniquet control invariably reveals a wooden twig or splinter which is surrounded by necrotic tissue and pus which forms a pathway till the sinus opening. Removal of the foreign body with meticulous debridement and healing of the wound by secondary intention resolves the lesion.

## MATERIALS AND METHODS

Between 2005 and 2009, 67 patients (47 M and 20 F; mean age- 28, range 8 to 53; follow-up: mean 2.5Y range of follow-up 2-4 years) were treated for neglected penetrating

foot injury following barefoot wading in shallow brooks.

The patients presented with plantar wounds which were not healing and sinus formation with intermittent pus discharge. The duration of injury ranged from 3 weeks to 15 weeks with an average of 7 weeks. Each patient had a routine x-ray of the foot but sonography was not done as it was not available in our setup. The patients were operated under regional or general anesthesia and tourniquet control. Postoperatively, the patients were kept on systemic antibiotics for 5 days.

## RESULTS

The presence of a foreign body inside the foot tissues was detected in 63/67 patients (94%) and they were operated upon by meticulous debridement and removal of foreign body (FB). In the remaining 4 patients we could not trace any sizable FB but we could remove organic debris and traces of bark. Complete healing was observed in 64/67 (95%) of patients, although 6 /67 (9%) underwent secondary debridement. There were no bony pathologies and the infective pathology was confined to the soft tissues only.

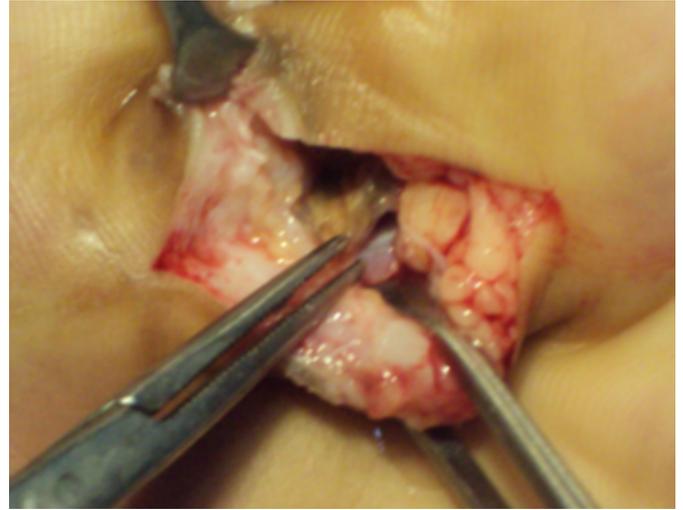
**Figure 1**

Fig 1: Normal X ray



**Figure 3**

Fig 3: Twig in soft tissue



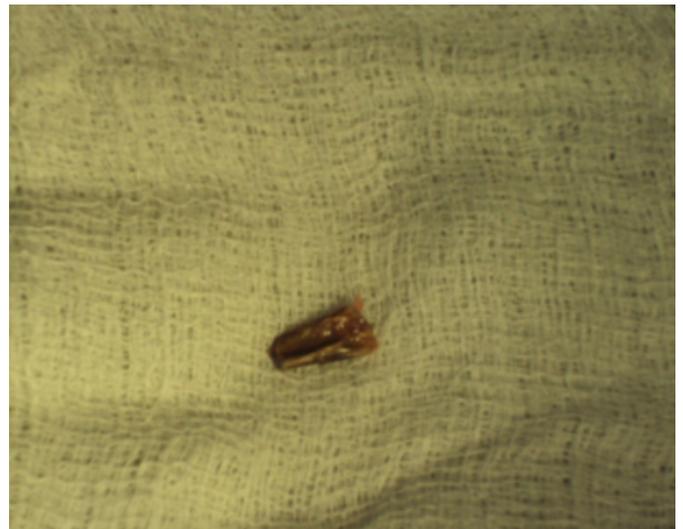
**Figure 2**

Fig 2: Plantar wound with sinus



**Figure 4**

Fig 4: Wooden splinter



## **DISCUSSION**

Penetrating foot injuries are common<sup>1</sup> in all parts of the world, and more so in the developing world. In order to avoid complications and poor clinical outcome, penetrating injuries of the foot must be approached in an orderly and appropriate manner. The main purpose is to confirm the presence of a foreign body. Splinters are foreign bodies that are partially or fully embedded in the skin. Splinters usually are wood, but metal, glass, and even plastic materials may be considered a splinter<sup>2</sup>. Usually, a splinter is fairly obvious. It causes pain and a sense that a foreign body is embedded in the skin. Often, the splinter is visible in or under the skin. The patient may or may not be able to feel the splinter or a tip of it. Sometimes, it may pass unnoticed until an infection

develops. Then, the area becomes red, swollen, warm, and tender. Infection is usually noted with purulent discharge, increased pain, redness, swelling, and even red streaking<sup>3</sup>. This could be a sign that a foreign body has not been removed. It is also important to remember that all such foreign bodies are contaminated with organic and inorganic debris. Even with complete removal and adequate cleansing, infection may still develop because the protective skin barrier is broken<sup>4</sup>. Most splinters that are visible do not require any tests. Plain radiography may aid in locating metallic splinters and occasionally glass as well. For deeply embedded splinters like twigs, ultrasound<sup>5</sup> or CT<sup>6</sup> may be needed. Excellent results are observed following foreign body removal, meticulous debridement combined with systemic antibiotics.

The typical lesion that we have described maybe common in other parts of the world but we have not come across literature supporting this fact. We observed this lesion as a common finding in barefoot waders crossing brooks and then presenting to us after a few weeks as non healing wounds on the feet. Since these people would take off their footwear prior to wading, they were prone to such injury. Generally, the patients were from the lower middle class and

did not have access to specialised medical care hence the delay in diagnosis. We could do routine radiography only in these patients as our setup was not equipped with ultrasound apparatus. However, X rays revealed no bony abnormality and it was only on surgical exposure that we could properly assess the presence of the foreign body. However, proper and complete removal of the twigs and meticulous debridement gave excellent results. The idea of this study is to enlighten the orthopedician to the presence of similar lesions in the feet when presented with identical barefoot wading histories. This is more pertinent when facilities of ultrasonography or CT are not available.

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